



436291

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: January 7, 1993

To: RCRA File Thru: David K. Harrison *[Signature]*

From: Richard H. Childers, Jr. *RHC 1/7/93* See Film Roll
Chemical Evaluation Section 37
For Attachments

Subject: Groundwater Monitoring Analytical Results for Gary Development
Gary, Lake County, Indiana
Collected on July 31, 1990; Samples TK2512 - TK2516
Analyzed by ARDL, Inc.

I have reviewed the attached analytical results and have determined that they are partially acceptable for use. These results have been evaluated for the quality criteria contained in the Indiana Quality Assurance Project Plan. Any qualifications to the acceptance of these results will be identified in this memorandum. This memorandum should remain attached to the original results.

Sampling Quality Assurance/Quality Control:

The field duplicate samples are used to establish the representativeness of the field sampling (i.e., the homogeneity in the well and sampling variability). The field duplicates are in agreement for those parameters which could be evaluated.

The field blanks (trip and equipment) are used to determine sample contamination due to field sampling equipment, sample containers, and preservatives. There was no contamination indicated in the field blank results for those parameters which could be evaluated.

Laboratory Quality Assurance/Quality Control:

The pesticide and polychlorinated biphenyl (PCB) analysis calibration was out-of-control. The pesticide and PCB results are not useable. The sodium analysis had no matrix spike sample analyzed. The total organic carbon (TOC) analysis had no matrix spike sample analyzed. The sulfide matrix spike analysis was out-of-control (bias high). The sodium, TOC, and sulfide results, including detection limits, are estimated and for that reason are not acceptable for use in an enforcement action. All other parameters are acceptable for use.

The following comments are for the acceptable parameters only.

Primary Water Limits:

There were no elevated levels for the primary water limits.

Secondary Water Limits:

The iron levels were elevated in all of the wells. The manganese levels were elevated in two (2) wells. The total dissolved solid levels were elevated in all of the wells.

Other Parameters of Interest:

The total solids and specific conductance levels were elevated in all of the wells.

Organic Compound Levels:

There were no significantly elevated levels of organic compounds present.

The interim primary and secondary drinking water levels (SDWA) exceeded are highlighted on the attached summary sheets. The primary standards refer to the parameters of arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, endrin, lindane, methoxychlor, and toxaphene. The secondary standards are chloride, iron, manganese, pH, sulfate, and total dissolved solids. Other parameters of interest are also highlighted.

Attachment

cc: Karyl Schmidt

Site Name: Gary Development Location: Lahr County
Date Sampled: 7, 31, 90 Date Reported: 8, 30, 90 Lab: ARJL

Date: 7/16/95

(SHEET #2)

[illegible]

Date: 1/16/93



VOLATILE ORGANIC COMPOUNDS

Site Name: Gary Development Location: Lake County
Date Sampled: 7, 31, 90 Date Reported: 8, 30, 90 Lab: ARDL

[illegible]

Empty Box indicates NON-DETECTABLE

• => Trip/Equip Blank (Type)

• => Field Duplicate

Signed:

NK => NoL Run

Date: 1, 6, 93



SEMI-VOLATILE ORGANIC COMPOUNDS

Site Name: Gary Development Location: Lake County
 Date Sampled: 7, 31, 90 Date Reported: 8, 30, 90 Lab: AROL

Sample Number	Type & ID #	Suro-gate Rec-covery	Date of Anal-ysis	Micrograms / liter					
				Phenol	1,2-dichloro	Benzene			
Notes:	Mon wells water		DL						
			10-50	10	10				
'TK2512	Blank*	good	8/2 8/17						
'TK2513	15 *	good	8/2 8/17						
'TK2514	15 *	good	8/2 8/17						
'TK2515	1E	good	8/2 8/17						
'TK2516	1N	good	8/2 8/17	19	22				
'									
MS/MSD		good	8/2 8/17						
'									
Method Blank		good	8/2 8/17						
'									
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NOT A REPORT - CHEMICAL EVALUATION WORKSHEET ONLY - REFER TO ATTACHED MEMO

Empty Box indicates NON-DETECTABLE

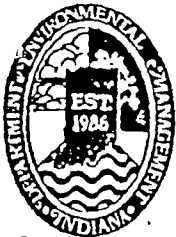
• => Trip/Equip Blank (Type)

• => Field Duplicate

Signed:

NR => Not Run

Date: 1, 16, 93



PESTICIDE & PCB COMPOUNDS

Site Name: Gary Development Location: Lake County
 Date Sampled: 7, 31, 90 Date Reported: 8, 30, 90 Lab: ARDL

Sample Number Lab / IDEM	Type & ID #	Suro- gate Rec- overy	Date of Anal- ysis	Micrograms/liter					
				Heptachlor	...	...	...	...	...
Notes:	Mon wells water	.....	D.L. 0.05-1.0	.....	.....	.....	.....	.....	.....
'TK2512	Blank*	66	El3 El4	.....	.....	.....	.....	.....	.....
'TK2513	IS *	66	El3 El4	.....	.....	.....	.....	.....	.....
'TK2514	IS *	50	El3 El4	.....	.....	.....	.....	.....	.....
'TK2515	IE	69	El3 El4
'TK2516	IN	62	El3 El4
'									
QMS (MSD)			ok El4						
'									
Method Blank			El3 El4	0.08					
'									
'									
'									
'									
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Results
Unusable
Chlorinated
out of control

NOT A REPORT - CHEMICAL EVALUATION WORKSHEET ONLY - REFER TO ATTACHED MEMO

Empty Box indicates NON-DETECTABLE

• => Trip / Equip Blank (Type)

• => Field Duplicate

Signed:

NR => Not Run

Date: 1, 16, 1993

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT

GROUNDWATER MONITORING SITE INFORMATION SHEET

Control #s. TK2512-TK2516 Site Contact LARRY HAGEN Tasks 1-7
Site Location (city first): GARY DEVELOPMENT CO.
Weather Conditions: Sky CLEAR Ground DRY Wind LIGHT Temp 78°F Humidity LIGHT
Collector(s): CHRIS MYER, JOE WOODS Laboratory ARND

Containers	Total #	Preservatives	ml/L	Lot #
1 liter plastic	<u>20</u>	50% H ₂ SO ₄	2	<u>LMS</u>
1 liter glass	<u>32</u>	HNO ₃	5	<u> </u>
40 ml vials	<u>10</u>	50% NaOH	1	<u> </u>
250 ml glass	<u> </u>	2N Zn Acetate	2	<u> </u>
<u> </u>	<u> </u>	<u>HCL</u>	<u>2-5 drops</u>	<u> </u>
<u> </u>	<u> </u>	<u>Samples Iced</u>	<u>Samples Unpreserved</u>	<u> </u>

Sampling Plan: (grab/composite); Used (facility/consultant/D.E.M.) equipment

Purged by: (facility/consultant/D.E.M.) personnel

with: Pump - type SP84, KICK SUBMERSIBLE size 1.5"

make KICK, SP84 tubing TEFLON

Bailer - (PVC/SS/Teflon) rope material polypropylene
diameter 1.5" length 2' capacity 500 ml

Filtered by: (facility/consultant/D.E.M.) personnel.

Filtration Method: (gravity/vacuum/pressure); Device type MASTERFLEX PERISTALTIC PUMP.

Filter (cartridge/paper) type QED, size HIGH, pore .45
FF8200 CAP.

Hydrolab -or- pH meter type , S.C. meter type hydrolab
Equipment is (dedicated/decontaminated) with DEMINERALIZED WATER K5

Source of: blank water ISBH, decon. water ISBH

Photos taken (yes/no)

MISCELLANEOUS

For Enforcement? (YES/NO/UKN)

Handling Precautions? (YES/NO/UKN)

PROGRAM AREA: (RCRA) CERCLA SOLID WASTE OTHER

Approximate Concentration (Worst case):

10 ppm 100 ppm 1000 ppm 5% 10% 15%

Notes:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE COLLECTION PLANNING

Facility Name GARY DEVELOPMENT Co. Location GARY Sample Collector(s) K. MYER, J. WOODS
Telephone Number _____ State I.D. Number 977 005 916 Contact Person LARRY HAGG
Specific Site to be Sampled MONITORING WELLS
Purpose ☐ Complaint ☐ Compliance ☐ Enforcement
Program ☒ RCRA ☐ CERCLA ☐ Solid Waste ☐ Other _____
Type ☐ Sludge ☐ Aqueous ☐ Liquid ☐ Solid ☐ Grab ☐ Composite ☐ Other _____
Number of Samples ☐ 1-4 ☐ 5-8 ☒ 4 wells, 1 dup 1 blank
Container Types ☒ Plastic Quarts # 24 Glass Quarts # 20 40 ML vials # 14 ☐ Pints Jars # _____
Container Preparation ☐ Solvent rinsed ☐ Other _____
Analyses Expected ☐ Flash Point ☐ EP Toxic ☒ Total Metals ☒ Volatile Organics ☒ Semi-Volatile Organics
☒ Cyanide ☒ PCB ☒ Others TOC SC TDS PH S
Types of Sampling ☒ Duplicates to be collected ☒ Preservatives Required ☒ Blanks 1 Trip/eq.
☐ Drummed Waste ☐ Bags, cans etc. ☐ Storage Tank ☐ Vacuum Truck ☐ Waste Pile
☐ Lagoon Sludge ☐ Pond ☐ Soil ☒ Other MONITORING WELLS
Sampling Eq. Needed ☐ Coliwasa ☐ Glass Tube ☐ Bacon Bomb ☐ Ponar Dredge ☐ Trowel ☐ Trier ☐ Auger ☐ Bailer
☐ Pond Sampler ☐ Dipper ☐ Peristaltic Pump ☐ Spade/Scoop ☐ Submersible Pump ☐ Well Wizard
Supplies Needed ☒ Paper Towels ☒ Pens ☒ Large Poly Bags ☐ Field Log Books ☒ Rule ☒ Receipts
☒ Sample Labels ☐ Sample Seals ☒ Sample Analysis Request Sheets ☒ Chain of Custody Records
☒ Waste Containers ☐ Decontamination Sprayer ☒ Solvents (for cleaning) ☒ Soap
☒ Wash Tub ☒ Cleaning Water ☒ Tools ☒ Coolers ☒ Ice ☒ Preservatives ☐ Camera
Preliminary Estimates of Concentration Available? ☐ YES ☒ NO If answer is YES, list concentrations on a separate sheet.
Sampling Strategies ☒ Statistical Sampling ☐ Other _____
Type of Statistical Sampling ☒ Simple Random Sampling ☐ Stratified Random Sampling ☐ Systematic Random Sampling
Safety Equipment Required ☐ Disposable Suit ☒ Hard Hat ☒ Gloves ☒ Boots ☐ Coveralls ☐ Eye Protection
☐ Respirator ☐ Explosiometer ☐ Self Contained Breathing Apparatus ☐ HNU Meter
☒ Fire Extinguisher ☒ Portable Eyewash Ear Protection ☐ Other _____
Expected Delivery To Lab: 817 190
Lab To Be Delivered To: ARND Address 1801 W FOREST MT. CARMEL Delivery Hours 8-5 Phone 618-244-3038
Hazards - Samples May Be ☐ Toxic ☐ Ignitable ☐ Reactive ☐ Concentrated ☐ Corrosive
Description of Site (use maps and attachments as necessary) UNKNOWN

QA/QC

R. H. Chubb

DATE:

6/21/90

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
LABORATORY ANALYSIS REQUEST FORM

Date Delivered 8/1/90Control Numbers TK2512 - TK2516

Laboratory Numbers _____

To request an entire task, circle task label; to request individual parameters within a task, place an X in the appropriate box.

TASK 1	T	*	Result
Arsenic		0.010 mg/L	
Barium		0.050 mg/L	
Cadmium		0.005 mg/L	
Chromium		0.010 mg/L	
Lead		0.010 mg/L	
Mercury		0.0005 mg/L	
Nickel		0.010 mg/L	
Selenium		0.005 mg/L	
Silver		0.010 mg/L	

TASK 2	X	*	Result
Chloride		1.0 mg/L	
Iron		0.10 mg/L	
Manganese		0.01 mg/L	
Phenols		.005 mg/L	
Sodium		1.0 mg/L	
Sulfate		5.0 mg/L	

TASK 3	X	*	Result
pH (D002)		0.1 units	
Spec Cond		5.0 umho	
TOC		3.0 mg/L	
TOX		0.05 mg/L	
Total Solids		10 mg/L	
Diss. Solids		10 mg/L	

TASK 4	X	*	Result
Total Cyanide		0.005 mg/L	
Total Sulfide		1.0 mg/L	

MISCELLANEOUS	X	*	Result
Oil & Grease		0.1 mg/L	
COD		5 mg/L	
BTU		3000 BTU	

TASK 5 VOLATILE ORGANICS (VOA)

TASK 6 SEMI-VOLATILES (SVOA)

TASK 7 PCB-PESTICIDES

Task 8	X	*	Result
Calcium		0.10 mg/L	
Potassium		0.10 mg/L	
Magnesium		0.03 mg/L	
Hardness(T)		mg/L	
Alkalinity		10.0 mg/L	
Nitrate-N		0.05 mg/L	

See ORGANIC ANALYSIS I & II forms
for a list of organics to be
analyzed.

T = Total (metals)
* = Contract Required
Detection Limits (CRDL)


Approximate concentrations:
(Worst Case):

10 ppm 100 ppm 1000 ppm
5% 10% 15%

Turn-Around Required

30 day
14 day
7 day
2 day

QAO (signature)

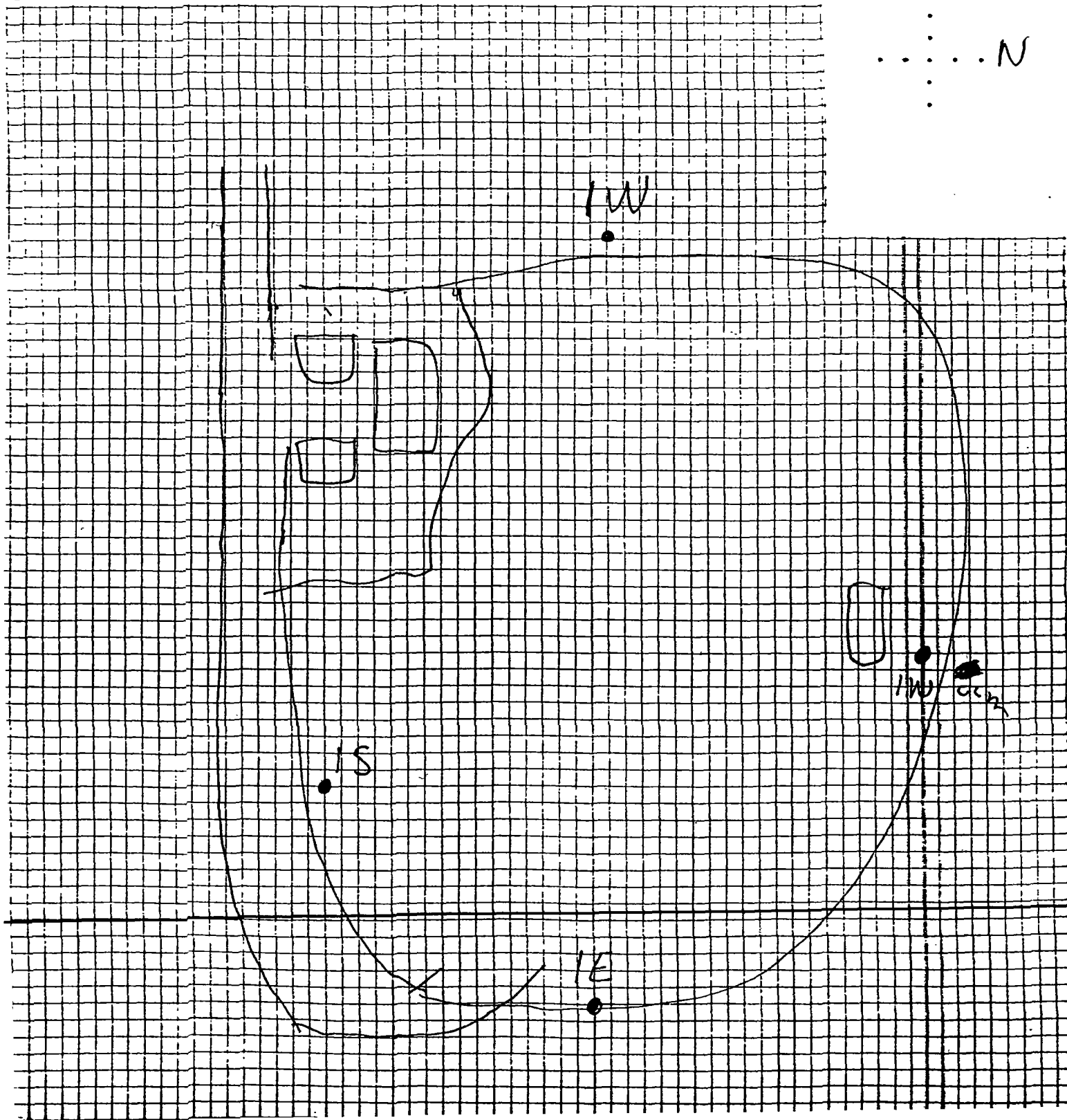


MAP:

clm



.....N





SAMPLE RECEIPT FORM

State Form 42092 (1-88)

Indiana Department of Environmental Management

EPA ID Number

IND 077 005 916

50812

Site	GARY DEVELOPMENT COMPANY, INC.			
Address (Street or Rural Route)	(City)	(State)	(ZIP Code)	
479 N CLINE AVE	GARY	IN	46406	
Date	7-31-90			
Description of Samples	GROUND WATER SAMPLES			

SPLIT SAMPLES REQUESTED?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
SPLIT SAMPLES ACCEPTED? (State does not supply the containers)	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO

Permission granted by and copies to be sent to:			
Name			
MR. LARRY HAGEN, GARY DEVELOPMENT CO. INC			
Address (Street or Rural Route)	(City)	(State)	(ZIP Code)
479 N. CLINE AVE	GARY	IN	46406
Phone Number			
Area Code ()			
Signature		Date	

IDEM Representative Initials	Date
CLM	7-31-90

DISTRIBUTION: YELLOW COPY - FILE, PINK COPY - SITE CONTACT

I certify the following samples were collected by me or in my presence.

Signature _____

Signature Chris L. Myers

[illegible]

MAXIMUM AND MINIMUM TEMPERATURES DURING COLLECTION AND TRANSPORT: MAX

78° f

MIN 4°C

TEMPERATURE OF SAMPLE AT EXCHANGE OF CUSTODY:

TRANSFER OF CUSTODY

I certify that I received the above samples.

Relinquished by: (Signature)

Noninquiries by: (Signature) Jack E. W. III

Received by: (Signature)

Janock Hagsten

TITLE	DATE	TIME	TITLE	DATE	TIME
6-5-90	8/1/90	10:00 AM/PM	Technician	8/1/90	13:30 AM/PM

Relinquished by: (Signature)

Received by: (Signature)

TITLE	DATE	TIME	TITLE	DATE	TIME
		AM / PM			AM / PM

Relinquished by: (Signature)

Received by: (Signature)

TITLE	DATE	TIME	TITLE	DATE	TIME
		AM / PM			AM / PM

LABORATORY RECEIPT OF SAMPLES

I certify that I received the above Samples. After recording these samples into the official logbook, they will remain in the custody of competent lab personnel or be secured in a locked area at all times.

Signature _____

Laboratory

Date _____

Time

AM / PM

DISTRIBUTION: YELLOW COPY - FILE. PINK COPY - LAB (KEEP). WHITE COPY - LAB (RETURN)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE SHEET

Sample I.D. Blank^{K5} DEM/OSHW Control # TK2512

Field Tests

Test	Result
Temperature	<u>17</u> °C
pH	<u>7.5</u>
Spec. Cond.	<u>115</u> umhos

Sample type

Mon. well
 Res. Well
 Duplicate of _____
 Split _____
 Blank (field/trip/equip.) equip.

Preservatives Lot #

Lab EM5
 HNO₃ _____
 H₂SO₄ _____
 NaOH _____
 Zn-Acetate _____
 HCL _____

Sample Date 7/31/90 11:55 AM PM equip 12:15 pm 7-31-90

Containers

1 liter plastic	<u>4</u>
1 liter glass	<u>2</u>
40 ml vials	<u>2</u>
250 ml glass	_____
500 ml glass	_____

Monitoring Well Data

Well I.D. _____
 Reference point on (steel/plastic) _____
 casing top _____
 Casing Stick-up _____
 Depth to Water _____
 Well Material (PVC/SS/Teflon) _____
 Total Well Depth _____
 Inside Diameter (1 2 4 6) inch _____
 Time to recharge one well volume -
 -within 1 4 8 24 48 or G.T. 48 hrs

Were METALS filtered prior to preservation? (Yes/No) Yes

Color of water subsequent to filtration Clear

Deviations from Sampling Plan

Other Observations

Water Appearance (clear slightly/very turbid) (color: gray/brown) clear
 Well purged (less/greater) than (1 2 4 8 12 24 48) hours prior to sampling
 Purged approx. (to dryness) / (1 2 3 4 5 8 10 G.T. 10 well volumes)
 Reaction upon addition of preservatives? (YES/NO) (explain) _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE SHEET

Sample I.D. 15 DEM/OSHWMM Control # TR2513

Field Tests

Sample type

Preservatives Lot #

Test Result
Temperature 18.0°C
pH 6.4
Spec. Cond. 303 umhos

Mon. well
Res. Well
Duplicate of _____
Split
Blank (field/trip/equip.)

Lab EMS
HNO₃ _____
H₂SO₄ _____
NaOH _____
Zn-Acetate _____
HCL

Sample Date 7/31/90 9:15 AM PM

Containers #
1 liter plastic 4
1 liter glass 10
40 ml vials 4
250 ml glass _____
500 ml glass _____

Monitoring Well Data
Well I.D. 15
Reference point on (steel/plastic) casing top
Casing Stick-up 5.56
Depth to Water 10.15 cm
Well Material (PVC/SS/Teflon)
Total Well Depth 14.45 20.00
Inside Diameter (1 2 4 6) inch
Time to recharge one well volume -
-within 14 8 24 48 or G.T. 48 hrs

Were METALS filtered prior to preservation? (Yes / No) _____
Color of water subsequent to filtration Clear

Deviations from Sampling Plan

Other Observations

Water Appearance slightly/very turbid (color: gray/brown)
Well purged (less/greater) than 12 4 6 12 24 48) hours prior to sampling
Purged approx. (to dryness) / (1 2 3 4 5 8 10 G.T. 10 well volumes)
Reaction upon addition of preservatives? (YES/NO) (explain) _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE SHEET

Sample I.D. 15 DEM/OSHW Control # TK2514

Field Tests

Test	Result
Temperature	<u>16.2°C</u>
pH	<u>6.7</u>
Spec. Cond.	<u>299</u> umhos

Sample type

Mon. well
 Res. Well
 Duplicate of TK2513
 Split
 Blank (field/trip/equip.)

Preservatives Lot #

Lab EMS
 HNO₃
 H₂SO₄
 NaOH
 Zn-Acetate
HCL

Sample Date 7/31/90 9:21 AM PM

Containers

1 liter plastic
 1 liter glass
 40 ml vials
 250 ml glass
 500 ml glass

#

4
~~2~~ 8 CCM

Monitoring Well Data

Well I.D. 15
 Reference point on (steel/plastic) casing top
 Casing Stick-up 5.56'
 Depth to Water 10.15'
 Well Material (PVC/SS/Teflon)
 Total Well Depth 20.00'
 Inside Diameter (1 2.45) inch
 Time to recharge one well volume -
 -within 1 4 8 24 48 or G.T. 48 hrs

Were METALS filtered prior to preservation? (Yes/No)

Color of water subsequent to filtration Clear

Deviations from Sampling Plan

Other Observations

Water Appearance (clear slightly/very turbid) (color: gray/brown) black
 Well purged (less/greater) than (1 2 4 6 12 24 48) hours prior to sampling
 Purged approx. (to dryness) / (1 2 3 4 5 8 10 G.T. 10 well volumes)
 Reaction upon addition of preservatives? (YES/NO) (explain)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE SHEET

Sample I.D. 1E DEM/OSHW Control # TK2515

Field Tests

Test	Result
Temperature	<u>16.3</u> °C
pH	<u>6.9</u>
Spec. Cond.	<u>183.8</u> umhos

Sample type

Mon. well
 Res. Well
 Duplicate of _____
 Split
 Blank (field/trip/equip.)

Preservatives Lot #

Lab EMS
 HNO₃
 H₂SO₄
 NaOH
 Zn-Acetate
HCL

Sample Date 7/31/90 10:35 AM PM

Containers	#
1 liter plastic	<u>4</u>
1 liter glass	<u>5</u>
40 ml vials	<u>2</u>
250 ml glass	_____
500 ml glass	_____

Monitoring Well Data

Well I.D. 1E
 Reference point on (steel/plastic) casing top
 Casing Stick-up 73'
 Depth to Water 16.15'
 Well Material (PVC/SS/Teflon)
 Total Well Depth 73' - 16.15' = 56.85'
 Inside Diameter (1 2 4 6) inch
 Time to recharge one well volume -
 -with _____ 4 8 24 48 or G.T. 48 hrs

Were METALS filtered prior to preservation? (Yes/No) Yes

Color of water subsequent to filtration Clear

Deviations from Sampling Plan

Other Observations

Strong decaying garbage odor. black
 Water Appearance (clear slightly/very turbid) (color: gray/brown)
 Well purged (less/greater) than (1 2 4 6 12 24 48) hours prior to sampling
 Purged approx. (to dryness) / (1 2 3 4 5 8 10 G.T. 10 well volumes)
 Reaction upon addition of preservatives? (YES/NO) (explain) _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SAMPLE SHEET

Sample I.D. IN ccn DEM/OSHW Control # TK2516

Field Tests

<u>Test</u>	<u>Result</u>
Temperature	<u>16.7</u> °C
pH	<u>6.7</u>
Spec. Cond.	<u>384</u> umhos

Sample type

Mon. well
Res. Well
Duplicate of _____
Split _____
Blank (field/trip/equip.) _____

Preservatives Lot #

Lab EMS
HNO₃ _____
H₂SO₄ _____
NaOH _____
Zn-Acetate _____
HCL V

Sample Date 7/31/90 12:00 AM (PM)

Containers

	<u>#</u>
1 liter plastic	<u>4</u>
1 liter glass	<u>6</u>
40 ml vials	_____
250 ml glass	_____
500 ml glass	_____

Monitoring Well Data

Well I.D. 1N
Reference point on (steel/plastic) casing top _____
Casing Stick-up 3.07 ft
Depth to Water 15.75 ft
Well Material (PVC/SS/Teflon) _____
Total Well Depth 17.95 ft
Inside Diameter (1 2 4 6) inch _____
Time to recharge one well volume -
-within 3 4 8 24 48 or G.T. 48 hrs

Were METALS filtered prior to preservation? (Yes/No) _____
Color of water subsequent to filtration clear

Deviations from Sampling Plan

Other Observations

Water Appearance (clear slightly/very turbid) (color: gray/brown) black
Well purged (less/greater) than (1 2 4 6 12 24 48) hours prior to sampling
Purged approx. (to dryness) / (1 2 3 4 5 8 10 G.T. 10 well volumes)
Reaction upon addition of preservatives? (YES/NO) KS (explain) _____

I certify the following samples were collected by me or in my presence.

Signature _____

Chris L. Myers

[illegible]

MAXIMUM AND MINIMUM TEMPERATURES DURING COLLECTION AND TRANSPORT: MAX

78°F

MIN 4°C

TEMPERATURE OF SAMPLE AT EXCHANGE OF CUSTODY:

TRANSFER OF CUSTODY

I certify that I received the above samples.

Relinquished by: (Signature)

Witnessed by: (Signature) Joseph E Woods III

Received by: (Signature)

d by: (Signature)

TITLE	DATE	TIME	TITLE	DATE	TIME
G-S-A	8-1-90	1:30 AM/PM	Technician	8/1/90	13:30 AM/PM

Relinquished by: (Signature)

signed by: (Signature)

Received by: (Signature)

d by: (Signature)

TITLE	DATE	TIME	TITLE	DATE	TIME
Technician	8/2/90	08:00 AM / PM			AM / PM

Relinquished by: (Signature)

Received by: (Signature)

TITLE	DATE	TIME	TITLE	DATE	TIME
		AM / PM			AM / PM

LABORATORY RECEIPT OF SAMPLES

I certify that I received the above Samples. After recording these samples into the official logbook, they will remain in the custody of competent lab personnel or be secured in a locked area at all times.

Signature

Signature Anna Lockman

Laboratory

FRDL, Inc

Date 08/01/90

Time	1330
------	------

AM / PM

DISTRIBUTION: YELLOW COPY - FILE, PINK COPY - LAB (KEEP), WHITE COPY - LAB (RETURN)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
LABORATORY ANALYSIS REQUEST FORM

Date Delivered ____/____/____/

Control Numbers ____ - ____

Laboratory Numbers _____

To request an entire task, circle task label; to request individual parameters within a task, place an X in the appropriate box.

TASK 1	T	*	Result
Arsenic		0.010 mg/L	
Barium		0.050 mg/L	
Cadmium		0.005 mg/L	
Chromium		0.010 mg/L	
Lead		0.010 mg/L	
Mercury		0.0005 mg/L	
Nickel		0.010 mg/L	
Selenium		0.005 mg/L	
Silver		0.010 mg/L	

TASK 2	X	*	Result
Chloride		1.0 mg/L	
Iron		0.10 mg/L	
Manganese		0.01 mg/L	
Phenols		.005 mg/L	
Sodium		1.0 mg/L	
Sulfate		5.0 mg/L	

TASK 3	X	*	Result
pH (D002)		0.1 units	
Spec Cond		5.0 umho	
TOC		3.0 mg/L	
TOX		0.05 mg/L	
Total Solids		10 mg/L	
Diss. Solids		10 mg/L	

TASK 4	X	*	Result
Total Cyanide		0.005 mg/L	
Total Sulfide		1.0 mg/L	

MISCELLANEOUS	X	*	Result
Oil & Grease		0.1 mg/L	
COD		5 mg/L	
BTU		3000 BTU	

TASK 5 VOLATILE ORGANICS (VOA)

TASK 6 SEMI-VOLATILES (SVOA)

TASK 7 PCB-PESTICIDES

Task 8	X	*	Result
Calcium		0.10 mg/L	
Potassium		0.10 mg/L	
Magnesium		0.03 mg/L	
Hardness(T)		mg/L	
Alkalinity		10.0 mg/L	
Nitrate-N		0.05 mg/L	

See ORGANIC ANALYSIS I & II forms for a list of organics to be analyzed.

T = Total (metals)
* = Contract Required
Detection Limits (CRDL)

Approximate concentrations:
(Worst Case):

10 ppm 100 ppm 1000 ppm
5% 10% 15%

Turn-Around Required

30 day
14 day
7 day
2 day

QAO (signature)



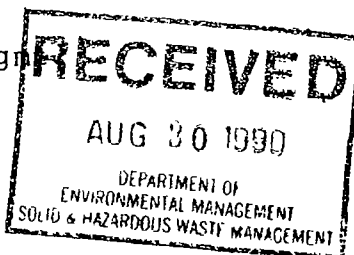


applied research & development laboratory

**CHEMISTRY • BIOLOGY • PHYSIOLOGY
ENGINEERING • ENVIRONMENTAL ANALYSIS**

29 August 1990

Mr. David Harrison
Indiana Dept. of Environmental Mgmt
105 S. Meridian Street
P. O. Box 6015
Indianapolis, IN 46241



SUBJECT: Data Package
ARDL ID: 1062
IDEM Samples: TK2512-TK2516

Dear Mr. Harrison:

Enclosed please find ARDL's final data package for analyses performed on samples delivered to our laboratory on 8/01/90. The data package consists of the following:

1. Letter of Transmittal
2. Tabulated Analytical Results - unbound copies of sample results are submitted separately for immediate use.
3. Chain-of-Custody Documentation - the original signed sheets are submitted.
4. Data Package - paginated and submitted in the following order:
 - a. Volume 1 - Inorganic Data Package
 - b. Volume 2 - Organic Sample Data Summary Package
 - c. Volume 3 - Volatiles Analysis Data Package
 - d. Volume 4 - Semi-Volatiles Analysis Data Package
 - e. Volume 5 - Pesticide/PCB Analysis Data Package

The basis for the order submitted above is USEPA CLP protocol with modifications in submitting copies of the tabulated results and chain-of-custody documentation separately.

If you have any questions regarding this package, please contact the undersigned at (618) 244-3235.

ARDL, Inc.

Mt. Vernon, Illinois

Mr. David Harrison
29 August 1990
Page 2 of 2

We appreciate the opportunity to be of service to the IDEM.

Thank you.

Sincerely yours,

A handwritten signature in cursive script that reads "Daniel J. Gillespie". The signature is written in dark ink and is positioned above the printed name and title.

Daniel J. Gillespie
Technical Services Manager

DJG/jcm